

IN THE CLAIMS:

1. (currently amended) A transmission type illumination device for stereomicroscopes, at least comprising:

- a light source;
- a collector lens located on an exit side of said light source;
- a diffuser located on an exit side of said collector lens;
- a convex lens located on an exit side of said diffuser;
- a ~~polarizing~~ deflection mirror located on an exit side of said convex lens to change an optical axis of said light source;
- at least one lens element located on an exit side of said ~~polarizing~~ deflection mirror and nearest to a view surface side; and
- an optical element having a periodical structure in a one-dimensional direction, said optical element being interposed between said ~~polarizing~~ deflection mirror and said at least one lens element.

2. (original) The transmission type illumination device according to claim 1, wherein the optical element having a periodical structure in a one-dimensional direction satisfies the following condition (1) with respect to an angle α for splitting a light beam incident on the optical element:

$$0.5D/L < \tan\alpha < 0.9D/L \quad \dots (1)$$

where D is a effective diameter of a secondary light source, and L is a distance from the optical element having a periodical structure in a one-dimensional direction to the secondary light source.

3. (previously presented) A stereomicroscope incorporating a transmission type illumination system which comprises a transmission type illumination device according to claim 1, wherein an angular aperture for illumination of an object under observation fully satisfies a pupil of a viewing optical system, wherein said angular aperture has an aspect ratio of 1:1.2 to 1:2.